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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,938	03/09/2004	Ron Naftali	6317P024	4473
Tarek N. Fahmi ⁷⁵⁹⁰ Applied Materials, Inc. Patent Counsel Santa Clara, CA 95052				
			EXAMINER	
			LIU, MICHAEL	
			ART UNIT	PAPER NUMBER
			2882	
			MAIL DATE	DELIVERY MODE
			12/04/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/796,938

Applicant(s)

NAFTALI, RON

Examiner

Michael Liu

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

1. Receipt is acknowledged of the Amendment filed on 17 September 2009. By this amendment, claims 1 and 5 have been amended. Accordingly, claims 1-8 are pending in the instant application.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 17 September 2009 has been entered.

Specification

3. The abstract of the disclosure is objected to because of the terms "an saturable absorber" and "said bean". Moreover, the word "said" is legal language and should be changed. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

4. The claim amendments and Applicant's arguments are not persuasive, and as a result, the rejection under Fukuda is maintained.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

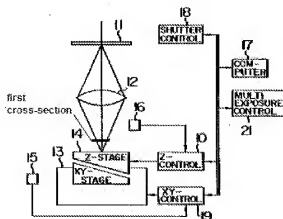
6. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda et al (4,904,569).

Claims 5 and 1: Fukuda discloses a system [Fig 3] for recording a pattern 11, comprising:

a controller 17, for determining an illumination scheme [via exposure control system 21] in response to the pattern; and

optics [C9L49-50: shutter controlled by shutter control system 18], coupled to the controller, for directing, in response to the determination, at least one beam of radiation [C11L62-63: excimer laser] having a first cross-section [Drawing 1] towards a reversible transmission film 44 [Fig 8c] that allows a portion of said beam to propagate towards a radiation sensitive layer 42, wherein the portion has a second cross-section [Fig 8d: grooves between 46] that is smaller than the first cross-section.

FIG. 3



Drawing 1 Fig 3 with first cross-section labeled.

Fukuda does not disclose expressly a saturable absorber.

However, Par 003 of the instant disclosure states, "A material can be regarded as a saturable absorber if its light absorption decreases with increasing light intensity." Similarly, Fukuda teaches, in C13L43-50, "Further, the transparency of the reversible transmission film depends upon the quantity of exposure light. That is, when a large quantity of exposure light is incident on the reversible transmission film, the transparency thereof is high. While, when a small quantity of exposure light is incident on the reversible transmission film, the film is not so transparent." Based on these descriptions, a reversible transmission film acts as a saturable absorber, only allowing light transmittance under a large quantity of exposure light, or increasing light intensity.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to recognize that the reversible transmission film 44 of Fukuda has the same properties as a saturable absorber and could be used as such, for the purpose of forming sharp patterns to achieve devices with better performance.

Claims 6 and 2: Fukuda discloses wherein the optics are adapted to focus the at least one beam of radiation onto an intermediate layer 43.

Claims 7 and 3: Fukuda discloses wherein the second cross-section [Fig 8d] is about half of the first cross-section [Drawing 1].

Claims 8 and 4: Fukuda discloses wherein the controller is adapted to control an intensity of the beam of radiation to achieve a certain second cross-section. [C17L6-12: "Further, it is possible to cause the bleaching characteristic of the reversible transmission film to match with the sensitivity of the photoresist layer by appropriately

selecting the exposure light quantity and the number of exposure operations, and hence the reversible transmission film can act as an efficient contrast enhancement layer.”]

Response to Arguments

7. Applicant's arguments with respect to the rejection under Fukuda have been fully considered but they are not persuasive. Applicant argues, “It is unclear from Fukada's description just what the phrase ‘quantity of light’ means” [P4L10-11]. The examiner respectfully disagrees. The quantity of light can be measured by the amount of current passing through a certain area. Similarly, in physics, intensity is a measure of the time-averaged energy flux and has units of power per area. If the quantity of incident exposure light gets larger, then there is a greater amount of current passing through that same area. Having a larger amount of current per area is equivalent to a larger power per area. As a result, when light quantity gets larger, light intensity increases. Therefore, the phrase “quantity of light” is synonymous with light intensity.

Additionally, Applicant contends, “Second, the reversible transmission layer of Fukuda is limited to enhancing the contrast of a pattern printed on a photoresist layer and does not affect the cross section of a beam” [P4L16-17]. The examiner respectfully disagrees. This argument has already been addressed in the Examiner's Answer mailed on 06 August 2009. The following is a restatement of the response to argument on P6L4-21.

In response to Appellant's argument that the references fail to show certain features of Appellant's invention, it is noted that the feature upon which Appellant relies, namely the saturable absorber acts to reduce the cross-section of the beam, is not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Specifically, claim 5 recites, "Optics, coupled to the controller, for directing, in response to the determination, at least one beam of radiation having a first cross-section towards a saturable absorber so as to allow a portion of said beam to propagate towards a radiation sensitive layer; wherein the portion has a second cross-section that is smaller than the first cross-section." Independent claim 1 recites, using respective language, similar features as claim 5. The claim language contains a first cross-section beam directed towards the saturable absorber and then a smaller second cross-section beam beyond the saturable absorber. The claim language does not tie the beam at the second cross-section being smaller as a result of the saturable absorber. In fact, there is no correlation between the saturable absorber and the cross-section size, much less the saturable absorber reducing the cross-section size. Therefore, as currently claimed, the saturable absorber does not reduce the cross-section of the beam.

As a result, the teachings of Fukuda still read on the claim language. Thus, Applicant's arguments on these points are not persuasive.

Conclusion

8. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Liu whose telephone number is 571-272-9019. The examiner can normally be reached on Monday through Friday 9 am - 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Liu/
11/24/09

Michael Liu
Examiner
Art Unit 2882

/Peter B. Kim/
Primary Examiner, Art Unit 2882